

Report to the Governor and General Assembly

Virginia's P-16 Education Council

October 2006

Virginia's P-16 Education Council Membership

Dr. Thomas R. Morris

Chairman
Secretary of Education

Dr. Virginia McLaughlin

Dean, School of Education
College of William & Mary

Dr. Billy K. Cannaday, Jr.

Superintendent of Public Instruction
Virginia Department of Education

Princess Moss

President
Virginia Education Association

William Davis, Jr.

Principal
Norfolk Technical Center

Lloyd U. Noland, III

Chairman Emeritus, Noland Company
Newport News, Virginia

Dr. Glenn DuBois

Chancellor
Virginia Community College System

The Honorable H. Russell Potts, Jr.

Member, Senate of Virginia
Winchester, Virginia

Dr. Mark Emblidge

President
Virginia Board of Education

James A. Rothrock

Commissioner
Department of Rehabilitative Services

Libby Garvey

Member
Arlington County School Board

The Honorable Robert Tata

Member, Virginia House of Delegates
Virginia Beach, Virginia

Dr. Gayle Evans Hefty

PASS Coach, Walnut Hill Elementary
Richmond, Virginia

David Temple

Program Officer
National Science Foundation

The Honorable Janet D. Howell

Member, Senate of Virginia
Reston, Virginia

Paul S. Tribble, Jr.

President
Christopher Newport University

Dr. Daniel LaVista

Executive Director
State Council of Higher Education for Virginia

The Honorable Onzlee Ware

Member, Virginia House of Delegates
Roanoke, Virginia

Alan Toxopeus

Chair
State Board for Community Colleges

Alan L. Wurtzel

Chairman, State Council of Higher Education and
Chairman Emeritus, Circuit City Stores, Inc.

Table of Contents

Executive Summary	3
Introduction	5
The Context for Reform	6
The need for additional education and training beyond high school has become universal	6
There is a growing skills gap in Virginia	6
Virginia is losing its competitive edge internationally	7
Education is a continuum: the importance of readiness	8
College readiness = workplace readiness	12
There is a dearth of data to evaluate the success of policies and programs	12
P-16 Education Systems	16
The purpose of P-16 systems	16
Creation of Virginia's P-16 Education Council	16
Education reform efforts in Virginia	18
Preliminary Findings and Recommendations	21
Readiness for postsecondary education and work	21
Comprehensive data systems: The foundation for evidence-based policy and practice	23
Oversight of education reform activities	24
Other Recently Initiated Activities Integral to the P-16 Effort	28
Continuation of the P-16 Education Council	29
References	30

The P-16 Education Council gratefully acknowledges the support of the National Governors Association through an Honor States grant funded by the Bill and Melinda Gates Foundation.

The Council wishes to thank the following staff who have contributed to the work of the Council and the preparation of this report:

Office of the Governor

Judy Heiman
Kendall Tyree

Virginia Department of Education

Dr. Patricia Wright
Dr. Linda Wallinger
Lan Neugent
Bethann Canada
Jim Firebaugh
Tabitha Foreman
Faye Rollings-Carter

Virginia Community College System

Peter Blake
Gloria Westerman
Elizabeth Creamer

State Council of Higher Education for Virginia

Tod Massa
Dr. Joice Conyers
Dr. Monica Osei

For a copy of this report go to
www.education.virginia.gov

Executive Summary

A generation ago, a college education was not a requirement for a comfortable, middle-class life. Today, a college degree is no guarantee of financial security, but individuals without some education or training beyond high school have little chance of finding satisfying work that pays well.

Several education reform efforts are under way in Virginia to prepare our youth for these challenges, and more are needed. Virginia's P-16 Education Council was created to better coordinate the Commonwealth's education reform efforts, improve transitions among levels of education and promote student success.

During its first year of deliberations, the Council examined data, consulted with national experts and worked with our own educational leaders to identify the most pressing needs and recommend goals and strategies to address them. The Council has concluded the following:

- All Virginians need to acquire additional education credentials beyond high school, either a college degree (two-year or four-year) or a rigorous workforce certificate. In today's world, this is a universal requirement for individual and regional economic success.
- In a global economy, we must use international as well as national comparisons to gauge our competitiveness. Virginia is falling behind other states and other countries in several key measures of educational performance.

- An elementary and secondary education system that is disconnected from higher education cannot meet the needs of students. Each sector of the educational continuum must prepare students for the next step. Pre-K programs must be aligned with expectations for entering kindergarten students, and similar alignment must be in place for primary, middle, secondary and postsecondary education.
- Education reforms must be data driven. The performance of our educational system should be measured and improved systematically, and policy choices should be informed by outcome data. This requires the ability to link data from existing systems to evaluate the effectiveness of instruction, intervention and teacher education programs.

Based on these findings, the Council makes the following recommendations:

1. Adopt a high common standard for college readiness among institutions of higher education and public schools.
2. Ensure that high school course content and assessments are aligned with postsecondary expectations.
3. Improve the preparation of middle school students for rigorous high school work. Several targets are identified.
4. Increase the number of students completing rigorous courses in high school. Several targets are identified.

5. Improve student transitions throughout the educational system, from pre-kindergarten to graduate school.
6. Create a robust P-16 data system with appropriate safeguards. Elements include:
 - ◆ Support for the proposed Board of Education regulation requiring use of student identifiers on transcripts
 - ◆ Legislation or regulations that impose appropriate safeguards for personal information
 - ◆ Ongoing sophisticated analyses of the effectiveness of Virginia's education system with particular emphasis on smooth transitions from one level to the next, and
 - ◆ Involving key constituents and education leaders in implementation of a P-16 data system

Introduction

Virginia's Constitution, in language adapted from Thomas Jefferson's Notes on Virginia, declares

"That free government rests, as does all progress, upon the broadest possible diffusion of knowledge, and that the Commonwealth should avail itself of those talents which nature has sown so liberally among its people by assuring the opportunity for their fullest development by an effective system of education throughout the Commonwealth."

— Constitution of Virginia,
Article I (Bill of Rights), Section 15.

The wisdom of those words, first included in Virginia's 1870 Constitution and originating nearly 100 years earlier in Mr. Jefferson's writings, has never been in sharper focus than in these first years of the 21st Century. The challenges today's young people face to maintain, much less improve on, their parents' standard of living in a fast-moving, competitive, knowledge-based and global economy can only be met through education and 21st Century skills.

Virginia has indeed established an effective system of education throughout the Commonwealth. Our public schools, colleges and universities are among the finest in the nation. Our students compare favorably with their counterparts across the United States (U.S.) in their performance on standardized tests and successful completion of advanced coursework. Yet, there is widespread agreement that current levels of educational achievement are not sufficient to sustain our economy and standard of living.

We can no longer compare ourselves only to our sister states as national boundaries become increasingly irrelevant to commerce, culture and intellectual life. And we can no longer accept that some students will not succeed in gaining the education and skills required for knowledge work as occupations that do not require advanced training rapidly disappear from our way of life.

This report outlines the preliminary findings and recommendations of Virginia's P-16 Education Council, appointed in 2005 to better coordinate the Commonwealth's education reform efforts, improve transitions among levels of education and promote student success.

The Context for Reform

6

The need for additional education and training beyond high school has become universal.

A generation ago, a college education was not a requirement for a comfortable, middle-class life. Today, a college degree is no guarantee of financial security, but individuals without some education or training beyond high school have little chance of finding satisfying work that pays well.

The Council for Virginia's Future examined the relationship between education and the economy in its 2005 Futures Forum.¹ The Council noted in its report *Competing in the 21st Century* that the proportion of jobs in the U.S. classified as unskilled dropped from 60 percent in 1950 to 15 percent by 1997. This rapid transformation to higher-skilled jobs has led to increases in American productivity and standard of living - but only for those who are qualified for the new jobs.

The earnings gap between college-educated workers and those without college degrees has widened steadily. The earnings of more-educated individuals have outpaced inflation while those of less-educated workers have barely kept up or declined. Compounding this trend, individuals without college degrees tend to have higher unemployment rates and longer periods of unemployment than those with college degrees. For individuals without high school diplomas, unemployment rates are significantly higher and earnings dramatically lower.

¹ *Competing in the 21st Century: Moving Virginia's Human Capital Meter*, Virginia Futures Forum, Council on Virginia's Future. <http://www.future.virginia.gov/forum/home/issuesbook.pdf>

The Virginia Futures Forum

The Virginia Futures Forum was established by the Council on Virginia's Future and Virginia Tech to help sharpen the focus about the long-term public policy issues facing the Commonwealth.

Competing in the 21st Century: Moving Virginia's Human Capital Meter is a report from the 2005 Forum on human capital development, and can be found at: <http://www.future.virginia.gov/forum/home/issuesbook.pdf>

There is a growing skills gap in Virginia.

This earnings gap reflects a growing skills gap in the workforce. According to the Virginia Futures Forum, "Based on the occupations and skills needed by industries, there are too many low-skilled workers in the United States and not enough high-skilled workers." This is particularly true for Virginia, where the ten fastest declining industries are those in manufacturing and agricultural sectors where skills requirements are relatively low.

Much of the decline in Virginia's manufacturing jobs is taking place in rural areas. A recent study by the Kansas City Federal Reserve Bank found that education is a strong driver for regional growth in both rural and urban areas, even more important than the presence of interstate highways to the growth of a rural area's knowledge-based industries.²

While Virginia has achieved remarkable gains in educational performance over the last decade with the early implementation of strong educational standards, these gains are not evenly distributed among Virginians. The performance of minority students, disadvantaged students, students with disabilities and a growing population of students with limited English proficiency lags well behind that of other students.

This persistent achievement gap is especially troubling in the context of major demographic shifts. The expected retirement of the highly educated

baby boom generation and projected increases in minority populations will make it difficult to maintain a skilled workforce without engaging more students in higher education. A recent policy paper from the National Center for Public Policy and Higher Education warns that if current trends continue with respect to the relative educational attainment of minority groups, the proportion of workers with high school diplomas and college degrees will decrease and the personal income of Americans will decline over the next 15 years.³

Virginia is losing its competitive edge internationally.

A college-educated population provides tremendous advantage to nations in a knowledge-based economy. While Americans have reason to be proud of our extensive system of higher education, there is evidence that we have become complacent and are falling behind in key measures of higher education performance including readiness, access and completion.

The Council on Virginia's Future notes that the U.S. is losing its competitive edge as student performance gains in other countries far outstrip gains among American students.⁴ International tests of math literacy show that performance of U.S. students is competitive relative to international peers in fourth grade but declines by eighth grade. Likewise, an international test of math and science showed U.S. students performing well above average in fourth grade but closer to average by eighth grade.

² Henderson, John and Abraham, Bridget, "Can Rural America Support a Knowledge Economy?," *Federal Reserve Bank of Kansas City Economic Review*, Third Quarter 2004, pages 81 and 91.

³ *Policy Alert: Income of U.S. Workforce Projected to Decline if Education Doesn't Improve*, National Center for Public Policy and Higher Education, November 2005. http://www.highereducation.org/reports/pa_decline/pa_decline.pdf

⁴ *Competing in the 21st Century: Moving Virginia's Human Capital Meter*, Virginia Futures Forum, Council on Virginia's Future. <http://www.future.virginia.gov/forum/home/issuesbook.pdf>

In addition, rates of high school completion are increasing dramatically in other countries while graduation rates stagnate here. While the U.S. ranks among the top countries in the proportion of older adults holding a college degree, we fall to seventh place for the number of younger adults (ages 25 to 34) holding a degree.⁵ The tremendous expansion of college access beginning after World War II reached a plateau in the 1990s and has stagnated since then. At the same time, other nations have accelerated participation in higher education, and the results are evident in the eroding ranking of the U.S. in educational attainment. With 34 percent of young adults ages 18-24 enrolled in college, Virginia ranks not only below the national average, but also well below Korea and Greece, and below Finland, Belgium and Ireland on this measure of college enrollment⁶ (see Figure 1.) This measure has improved since 1992 when only 31 percent of Virginia's young adults were enrolled in college, but there is room for improvement with college participation in top states and countries approaching and exceeding 50 percent. Even for those students who do enroll in postsecondary education, Virginia and the U.S. rank in the bottom half of countries on completion of certificates and degrees.

⁵ *Measuring Up 2006: The National Report Card on Higher Education*, National Center for Public Policy and Higher Education, September 2006. http://measuringup.highereducation.org/_docs/2006/NationalReport_2006.pdf

⁶ *Measuring Up 2006: The State Report Card on Higher Education - Virginia*, National Center for Public Policy and Higher Education, September 2006. http://measuringup.highereducation.org/_docs/2006/statereports/VA06.pdf

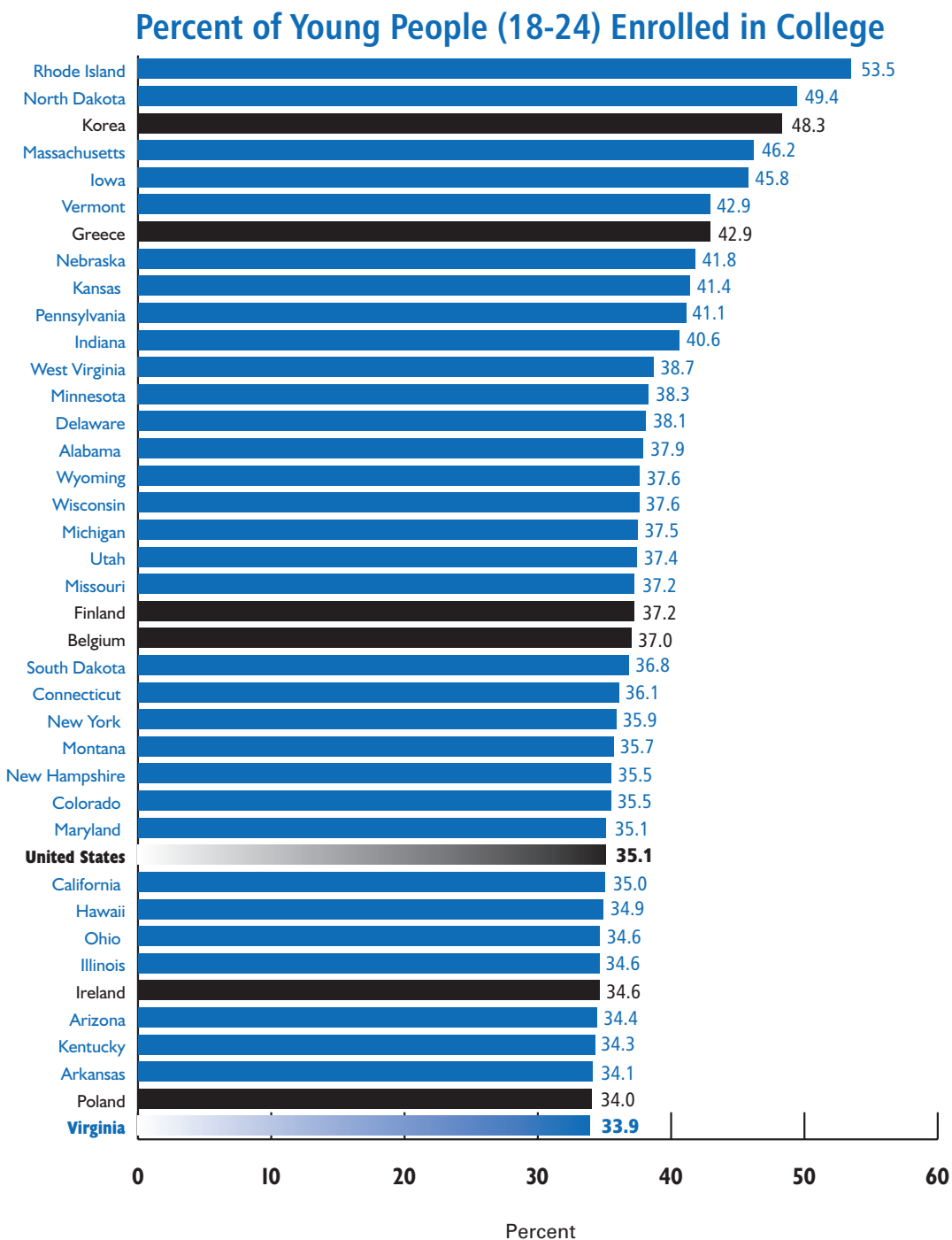
Education is a continuum: The importance of readiness.

In the U.S., the K-12 and higher education systems developed separately at a time when most students did not pursue postsecondary education. Now that the need for additional education or training beyond high school is universal, it no longer makes sense for these systems to operate in isolation. Elementary and secondary education must prepare students for postsecondary education. Educators, students, parents and policymakers must view education as a continuum from early childhood through higher education, with appropriate transitions along the way.

Teachers at all levels are finding that far too many students entering their classrooms are not prepared to do work at the appropriate grade level. Kindergarten teachers report that many children do not have the social and emotional skills to make it through the school day, and they lack important building blocks for early literacy and mathematics skills, such as letter and number recognition, vocabulary and awareness of words and books. Some of these children have been in early childhood care and education settings prior to kindergarten; however, often such programs are not aligned with the expectations for entering kindergarten students.

The story is similar at the other end of P-12, in the transition from high school to college. At Virginia's community colleges, more than half of recent high school graduates require remedial courses before they can do college-level work. College teachers report students have weaknesses in reading, writing and mathematics abilities, as well as in critical

Figure 1: College participation among young people



Source: Measuring Up 2006: The National Report Card on Higher Education

thinking skills and the ability to communicate well and collaborate with others.

A result of this disjointed approach to our educational system is illustrated in Figure 2, representing Virginia's Education Pipeline. The pipeline analysis developed by the National Center for Higher Education Management Systems (NCHEMS) estimates state-by-state patterns of student progress from the 9th grade through four key transition points:

1. High school graduation within four years of entering high school

With a high school graduation rate of 74 percent, Virginia does better than the national average (67 percent) but is far below the best state (New Jersey at 86 percent).

2. Enrollment in college the fall semester after receiving a high school diploma

Virginia's rate for high school graduates immediately entering college (53 percent) is close to the national average (57 percent) but well below the top state (North Dakota at 69 percent).

3. Return for the second year of college

For persistence at four-year colleges, Virginia does markedly better than the national average, and is one of the top ten performing states. About 82 percent of students return for their sophomore year, compared to 74 percent nationally and 84 percent in California, the top state. At two-year colleges, the first-year to

second-year persistence rates are 55 percent, 54 percent and 67 percent for Virginia, the nation and New Hampshire, the top state, respectively.

4. Completion of an associate's degree within three years or a bachelor's degree within six years of enrolling in college. This analysis enables states to compare patterns of student progress with other states and with national averages

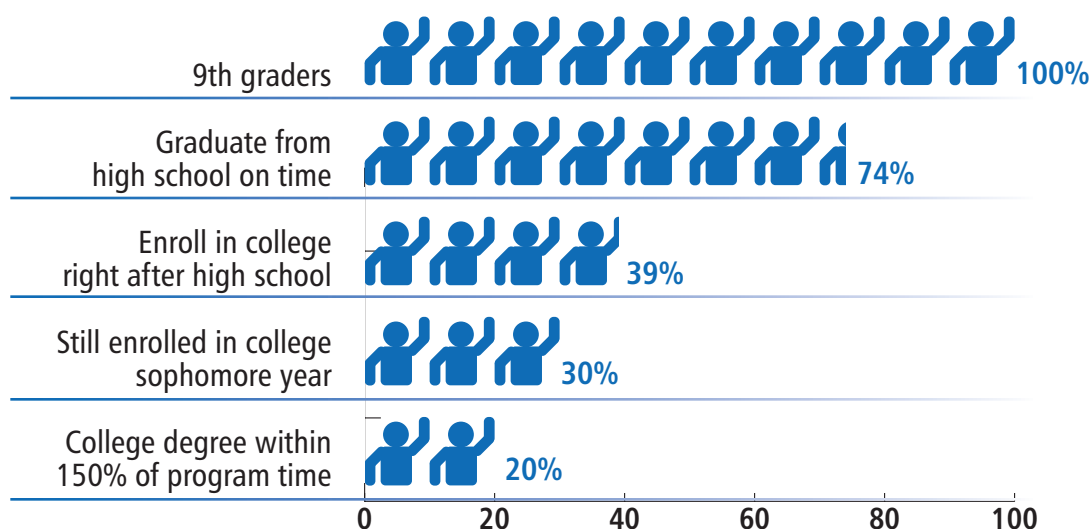
Finally, the proportion of Virginia's students who graduate within three years for an associates degree is 22 percent, well below the national average of 30 percent, while the six-year graduation rate is 59 percent, between the national average of 53 percent and the top state rate of 65 percent (Rhode Island).

Figure 2 illustrates these leaks in the pipeline by applying the corresponding attrition rates to a hypothetical 100 high school freshmen. Longitudinal data that include some students not counted in the NCHEMS analysis, such as some part-time and transfer students, yield higher proportions of students graduating at the end of the pipeline, generally in the range of 35 percent.⁷ The underlying problem is clear: No matter how you measure it, there are gaping leaks in the education pipeline through which we are losing human capital we can ill afford to waste.

⁷National Center for Education Statistics (NCES) Longitudinal Study. <http://nces.ed.gov/surveys/nels88/>

Figure 2: Virginia's Educational Pipeline in 2002

Out of 100 9th Grade Students . . .



Source: National Center for Higher Education Management Systems

U.S. Secretary of Education Margaret Spellings, in her recent *Action Plan for Higher Education* based on the work of the Commission on the Future of Higher Education, calls for strengthening K-12 preparation and aligning high school standards with college expectations.

The American Association of Colleges and Universities has launched a major national campaign to champion the value of a liberal education beginning in high school. The campaign, Liberal Education and America's Promise (LEAP), is designed to expand public and student

understanding of the kinds of learning that can truly empower individuals with broad knowledge and transferable skills. The initiative aims to address critical and creative thinking, communication, quantitative and informational literacy, teamwork and problem solving as well as other intellectual and practical skills and knowledge. Through a leadership council of academic, business and community leaders, Virginia has signed on as the second official pilot state for the campaign.

College readiness = workplace readiness.

Recent research suggests that high school graduates need similar skills to succeed in postsecondary education and in the workplace.⁸ In addition, there is broad consensus that students now need at least two years of postsecondary education or training to be successful in a workforce that requires advanced skills, eliminating the distinction between college readiness and career readiness.

Researchers at the Weldon Cooper Center at the University of Virginia interviewed more than 500 employers in Virginia to find out which skills employers looked for in their entry-level employees. Over a period of 3 1/2 years, a study was conducted that captured the thoughts of employers regarding entry-level jobs requiring less than a four-year college degree. The results of that study were summarized in *Virginia's Changing Workplace: Employers Speak*.⁹ This study provided the foundation for the Virginia's Workplace Readiness Skills, developed by the Virginia Beach City Public Schools' Office of Technical and Career Education through a grant from Opportunity Inc., Hampton Roads' Workforce Development Board (see box on next page).

⁸ ACT Inc. *Ready for College and Ready for Work: Same or Different?* Iowa City, IA: ACT. <http://www.act.org/path/policy/pdf/ReadinessBrief.pdf>

⁹ Martin, Julia, Carrier, Achsah H., and Hill, Elizabeth. *Changing Workplace: Employers Speak*. Weldon Cooper Center for Public Service, University of Virginia, 1997.

Not surprisingly, these skills include traditional academic subjects such as reading, mathematics, writing, speaking, computer and problem-solving skills. They also include "soft skills" that employers look for in their employees such as understanding the "big picture," work ethic, a positive attitude, independence and initiative, self-presentation skills, attendance and teamwork.

There is a dearth of data to evaluate the success of policies and programs.

Growing awareness of the need for educational reform has led to a host of initiatives over the past several years in Virginia and other states. These reforms have often been carried out without adequate plans to evaluate their effectiveness. Retrospective efforts to assess the impact of policies and programs have been blocked by lack of available data. In Virginia, efforts to understand why more than half of students are required to take remedial courses before being able to do college-level mathematics and English at the community colleges have been stymied by an inability to track students from high school to college. Wide-ranging estimates of high school graduation rates based on various measures have hampered efforts to improve high school completion.

Federal reporting requirements under No Child Left Behind and national initiatives such as the National Governors Association (NGA) effort to develop a uniform definition for high school graduation rates have spurred efforts to improve educational data systems. The national Data Quality Campaign is leading an effort to help state policymakers improve

Virginia's Workplace Readiness Skills

1. Demonstrate reading skills on a level required for employment in a chosen career field.
2. Demonstrate math skills on a level required for employment in a chosen career field.
3. Demonstrate writing skills on a level required for employment in a chosen career field.
4. Demonstrate speaking and listening skills on a level required for employment in a chosen career field.
5. Demonstrate computer literacy on a level required for employment in a chosen career field.
6. Demonstrate reasoning, problem-solving and decision-making skills.
7. Demonstrate understanding of the "big picture."
8. Demonstrate a strong work ethic.
9. Demonstrate a positive attitude.
10. Demonstrate independence and initiative.
11. Demonstrate self-presentation skills.
12. Maintain satisfactory attendance.
13. Participate as a team member to accomplish goals.

For additional information see <http://www.thecapcenter.com/workplace/> and <http://www.ctreresource.org/publications/featured/wpr/index.html>

the collection, availability and use of high-quality education data, and implement state longitudinal data systems to improve student achievement.

Ten essential elements of a state longitudinal data system have been identified.

Six of these elements are in place in Virginia:

- a unique statewide student identifier
- student-level enrollment, demographic and program participation information
- the ability to match individual students' test records from year to year to measure academic growth
- information on untested students
- student-level graduation and dropout data
- a state data audit system assessing data quality, validity and reliability

Virginia is missing four elements:

- a teacher identifier system with the ability to match teachers to students
- student-level transcript information, including information on courses completed and grades earned
- student-level college readiness test scores
- the ability to match student records between Pre-K-12 and higher education systems

Virginia has been actively improving its educational data systems and is working toward implementation of all ten essential elements. Currently the Department of Education (DOE) is in the third year of implementation of the Educational Information Management System (EIMS), a statewide longitudinal data system based on a unique student identifier that will remain with students as they move through the system. For the first time in 2008, Virginia will be able to provide an accurate assessment of graduation rates and dropout rates, after tracking entering high school students through four years of activity.

In addition to DOE's EIMS, which includes data on students from pre-kindergarten through high school, the State Council of Higher Education for Virginia (SCHEV) maintains a database with information about Virginia's public and private college students. SCHEV has effectively used these data to answer important policy questions for higher education.

Finally, DOE maintains data on teacher licensure candidates and licensees. The Teacher Education and Licensure (TEAL) system - Phase I automates the processing of school personnel licenses and tracking and reporting of instructional personnel assignments. Phase II of the system, known as TEAL II, is a comprehensive database to support Virginia's commitment to teacher quality. Once completed, this system will include information on teachers "in the pipeline" in our teacher education programs and the ability to track teacher outcomes based on surveys completed at various points in a student's educational and professional experience.

Virginia is now in the process of developing a *virtual* longitudinal data system that will allow research to cross system boundaries. ***It will be virtual because the data from these three separate systems will not be combined into one massive database, as has been done in some states.*** Instead, the system will consist of data standards and other mechanisms to allow data pulled from each system for particular analyses to be matched to corresponding records in the other system to answer specific questions.

It is important to note that very few new data elements will need to be collected. These data already exist in Virginia's separate systems. The problem is that in isolation, the data cannot be well utilized to inform state education policy and practice. By creating temporary links for specific analyses through a virtual data system, analysts will be able to use these data that have been so carefully collected and stored to improve the performance of our public education systems. Following are some examples of how the data may be used to improve outcomes:

Improving teaching and advising

Student performance in Virginia public schools is regularly evaluated through a comprehensive system of Standards of Learning (SOL) assessments. Existing data could be analyzed to identify specific patterns of performance that predict student success in more advanced coursework. For example, teachers and counselors could then recognize more clearly the patterns of scores linked with readiness for Advanced Placement (AP) or International Baccalaureate (IB) programs. A system linking K-12 and postsecondary data would reveal

the specific relationships among SOL assessment scores and performance in college level courses. Such information would help both K-12 and postsecondary programs to improve their teaching and advising.

Strengthening teacher preparation programs

Like other states, Virginia is experiencing a critical shortage of qualified teachers to work in its most challenging schools, typically schools in highly urban or rural areas that serve the greatest numbers of children in poverty. Addressing this issue effectively requires a better understanding of the types of programs that prepare the teachers who seek employment in "hard-to-staff" schools, stay in these settings and, most importantly, improve student achievement. The TEAL II data system will enable researchers to link data on teacher characteristics, licensure and employment with data about their preparation programs, coursework and clinical experiences. When the system is fully implemented, further studies using large data sets can relate teacher and program information with student achievement data. Such insights will help strengthen teacher preparation programs; teacher recruitment and development programs in public schools; and state policy initiatives for ensuring quality teachers for all students in the Commonwealth.

P-16 Education Systems

16

The purpose of P-16 systems

Several states are undertaking P-16 initiatives to improve the connection among and transitions between components of their education systems. According to the Education Commission for the States¹⁰, common strengths of such initiatives include:

- They are inclusive, aiming to improve the system for all students
- They align efforts at all levels
- They support standards and assessments
- They establish a logical progression across systems
- They reduce the need for remediation
- They identify and remove artificial barriers to student progression and success
- They promote greater collaboration between education professionals at all levels
- They advance widespread parent, community and student understanding of goals and expectations
- They reduce dropout rates in both secondary schools and colleges

These improvements, in turn, are expected to lead to higher education levels across all income and ethnic groups, which is associated with greater employment stability and civic engagement as well as decline in public assistance and crime rates.

The recent report of Secretary Spellings' Commission on the Future of Higher Education encouraged the expansion of P-16 efforts, and recommended that activities under way in a number of states to align K-12 graduation standards with college and employer expectations be implemented in all 50 states.

Creation of Virginia's P-16 Education Council

Virginia's P-16 Education Council was created in 2005, and is chaired by the Governor's Secretary of Education. The Council includes executive-level representation from the Board of Education and DOE, the State Board for Community Colleges and the Community College System, the State Council for Higher Education at the board and staff level, higher education institutions, state and local elected officials, business leaders, the Virginia Education Association, the National Science Foundation and additional state agencies.

Governor Kaine has met with the Council and urged members to persist in fulfilling its charge to better coordinate the Commonwealth's education reform efforts, improve transitions among levels of education and promote student success. Support for formation of the Council was provided by the NGA Honor States Grant, funded by the Bill and Melinda Gates Foundation.

¹⁰*What Is P-16 Education? A Primer for Legislators - A Practical Introduction to the Concept, Language and Policy Issues of an Integrated System of Public Education.* Education Commission for the States, 2001. <http://www.ecs.org/clearinghouse/24/28/2428.htm>

Specific responsibilities of the Council include:

1. Identify opportunities to better coordinate the state's education reform efforts from preschool to graduate school.
2. Serve as a steering committee for oversight of the state's education reform activities as part of the NGA Honor States Grant.
3. Develop approaches to improve transitions among levels of education, promote student success and encourage students to continue their education.
4. Consider strategies for data systems that provide information about students at all educational levels
5. Make any other recommendations as may seem appropriate.

The Constitution of Virginia requires the Board of Education (BOE) to determine and prescribe standards for the public schools of Virginia, subject to revision only by the General Assembly. These standards are known as the Standards of Quality and form part of the Code of Virginia. They address minimum requirements related to instructional programs, staffing requirements, school accreditation, student achievement measures, teacher quality, administrative leadership, planning and public involvement, school board policies and compliance. The BOE also enacts policies and regulations that further define requirements for instruction, school leadership, facilities and safety, communication with the public and school accreditation. The DOE implements the policies and regulations of the board. Additionally, each school

division determines local school policies related to areas such as scheduling, grading, attendance and discipline.

The Virginia Community College System (VCCS) provides comprehensive higher education and workforce training programs and services under the purview of the State Board for Community Colleges and the individual community college boards. The 23 colleges in the VCCS operate under a centralized system office with a common set of course descriptions, although all colleges do not have the same course offerings. Admission is open to anyone with a high school diploma, a GED certificate, a certificate of completion of home schooling or a passing score on the Ability to Benefit test. Students may take courses for credit and earn degrees and diplomas, as well as transfer credits to four-year colleges. The VCCS also provides noncredit instruction leading to industry certifications and other workforce credentials.

The Code of Virginia assigns The State Council of Higher Education for Virginia (SCHEV) the responsibility to develop "policies, formulae and guidelines for the fair and equitable distribution and use of public funds among [Virginia's] public institutions of higher education." In addition, it directs SCHEV to analyze each institution's operating and capital budget requests and provide recommendations to the Governor and the General Assembly regarding the approval or modification of each request. The Code also assigns SCHEV general duties in its coordination of Virginia's system of higher education including a statewide strategic plan.

These three executive branch agencies and their respective boards have oversight responsibilities for the three main sectors providing educational services in the Commonwealth. The table that follows highlights some of the educational improvement and reform initiatives implemented by these agencies in recent years.

Education reform efforts in Virginia

During the last ten years of educational improvement and reform in Virginia, significant commitment has been demonstrated on the part of the Governor's Office, the General Assembly, the BOE and DOE, as well as school divisions, schools, students and their parents. Virginia's public education system has undergone a transformation toward a system grounded in standards and assessments to ensure a quality education for all students. Considerable progress has been made as the number of accredited schools has increased from 7 percent in 1999 to 92 percent in 2006. New, more rigorous graduation requirements were implemented for the graduating class of 2004, and the Project Graduation initiative was implemented to help students meet the higher standard.

Several successful initiatives have been established in recent years. One of the roles of the P-16 Council is to better coordinate the state's education reform efforts. The listing below highlights the need for coordination and alignment of efforts across educational sectors.

Smart Beginnings is a communications initiative promoting partnership and collaboration to enhance opportunities for optimal growth and development for children from birth to kindergarten. This initiative focuses on parent education, including information for new parents about early childhood development and consumer education for parents regarding selecting and accessing quality childcare and preschool programs, as well as professional development for providers of early childhood education. Smart Beginnings is coordinated by the Virginia Early Childhood Foundation.

The following are administered by DOE:

Virginia Preschool Initiative improves school readiness. This program has been expanded in recent years to cover all at-risk four-year-olds in participating localities.

The Algebra Readiness program prepares middle school students for success in Algebra I through diagnostic and tutorial activities.

The Early College Scholars program allows eligible high school seniors to satisfy high school diploma requirements while earning at least 15 hours of transferable credits toward a college degree.

The Virginia Virtual AP School provides a variety of AP courses, enabling students to earn college credit regardless of their high school's ability to offer college-level courses.

Project Graduation includes regional academies, online tutorials, electronic practice tests and opportunities for students to complete their diploma requirements after the senior year.

The Career Prep Academy provides opportunities for recent non-graduates who need standard and/or verified credits to graduate with a high school diploma and an industry certification or state licensure.

The following are administered by VCCS, or jointly by VCCS and other higher education institutions or DOE.

Systemwide transfer and articulation agreements provide clear expectations for transfer of students and credits between community colleges and four-year colleges.

Path to Industry Certification encourages students who are not planning to attend college immediately after graduating from high school to continue pursuing technical training for a selected industry certification.

The Middle College program provides high school drop-outs between the ages of 18 and 24 an opportunity to attain a GED and enroll in a variety of courses that enhance basic workforce skills through engagement in project-based learning; to take remedial courses,

Education reform efforts in Virginia *continued*

20

when necessary; to accumulate community college credits applicable towards a degree or certificate; and to attain an ACT Work Keys workforce readiness certificate.

Career Coaches are community college employees placed in local high schools to increase the number of high school graduates prepared for employment and/or community college enrollment in a career and technical field.

Career Pathways are designed to improve student recruitment and retention in postsecondary programs in science, math, engineering and technology areas. Pathways include articulation and dual enrollment, experiential learning and workforce readiness skills development as well as career coaching and planning.

Two programs are managed by Virginia's public and private colleges:

The Commonwealth College Course Collaborative provides a set of academic courses students may take in high school that fully transfer as core requirements and degree credits at Virginia colleges and universities.

The VirginiaMentor Web site offers access to information and admissions applications for public and private colleges and universities within Virginia, and includes an Early College Scholars Transfer Tool that shows students how to maximize the amount of college credit they earn in high school. The Web site also provides free college admission test preparation for students, through funding from the National Governor's Association Honor States Grant. VirginiaMentor is a student services web site representing the public and private colleges and universities of Virginia.

The following is administered by SCHEV:

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)

is a federal grant program that funds partnerships among middle and high schools, postsecondary schools, community organizations and businesses to help qualified students enter and succeed in postsecondary education. These partnerships provide tutoring, mentoring and information on college preparation and financial aid, while emphasizing the need for core academic preparation. Other programs with similar missions include **Project Discovery** and **An Achievable Dream**.

Preliminary Findings and Recommendations

The Chairman of the P-16 Council appointed two working groups to address priority areas identified by the Council for the first year's work:

Readiness for postsecondary education and work

The Working Group on Readiness for Postsecondary Education and Work is chaired by Dr. Billy K. Cannaday, Jr., Superintendent of Public Instruction. The Council Chairman's charge to this working group included the following:

- Recommend definitions of postsecondary education/work readiness (or process for developing such definitions) that will be accepted by colleges, universities, other postsecondary programs and employers.
- Recommend a method of assessing postsecondary readiness as defined above.
- Recommend legislation, regulations or other policy instruments required to implement assessment of postsecondary readiness in high school students.
- Recommend indicators of excellence for success in postsecondary education and work readiness.

The Council has endorsed the following recommendations from the working group:

1. **Work with the BOE and public and private colleges and universities to adopt a common standard for college readiness among institutions of higher education and public schools. Endorse an existing standard, such as the nationally accepted College Board Standards for College Success™, or develop an alternative standard. Given the convergence of skills required to succeed in postsecondary education and in the workplace, this standard shall serve as the accepted definition of postsecondary readiness.**
2. **Work with DOE and higher education institutions and employers to ensure that high school course content and assessments are aligned with expectations of postsecondary educators and employers.**
 - a. Conduct an audit of Virginia's curriculum framework, SOL and end-of-course assessments in high school English/language arts and mathematics in comparison to the College Board Standards for College Success™ or alternative common standard as adopted to determine whether P-12 standards, assessments and graduation requirements are aligned with postsecondary requirements.
 - b. Examine the relationships among performance on current end-of-course assessments, performance on national standardized tests and success in the

first two years of college. These existing measures may serve as proxies for assessment of postsecondary readiness, until such time as the common standard is embedded in state assessments and graduation requirements.

- c. Complete a study of recent high school graduates requiring remediation for college work, specifically identifying the correlates of remediation rates in characteristics of students, high schools and high school course-taking patterns. Additional recommendations will be based on the results of this study.
 - d. Request that the BOE explore the possibility of requiring that high school graduates successfully demonstrate key workplace readiness skills.
- 3. Request that the BOE and DOE continue to work with local school boards and school divisions to improve the preparation of middle school students for rigorous high school work.**
- a. Increase the proportion of students successfully completing Algebra I by the end of eighth grade from 30 percent in 2006 to 45 percent by 2010.
 - b. Increase the proportion of students who score at or above the proficient level on the National Assessment of Educational Progress (NAEP) eighth-grade reading assessment from 36 percent in 2005 to 45 percent by 2010.
 - c. Increase the proportion of students who score at or above the proficient level on the NAEP eighth-grade writing assessment from 32 percent (2002 assessment) to 40 percent by 2010.
- 4. Increase the number of students completing rigorous courses in high school. Adopt the following goals and challenge the BOE, DOE and institutions of higher education with developing strategies to reach them:**
- a. Increase the proportion of students successfully completing AP, IB or dual-enrollment courses from 17 percent in 2005 to 25 percent in 2010.
 - b. Increase the number of Advanced Studies Diplomas earned by high school students from 51 percent in 2006 to 57 percent in 2010.
 - c. Increase the number of industry certifications, state licenses and successful National Occupational Competency Testing Institute (NOCTI) assessments earned by high school students from 5,993 in 2006 to 7,191 in 2010, a 20 percent increase, assuming continued funding to support costs for licensure testing and assessments.
 - d. Implement the Commonwealth Scholars program in pilot districts with eighth-grade students in 2006-07 and evaluate the extent to which it increases the proportion of students taking a more rigorous curriculum in the first two years of high school by 2008-09.

5. Improve student transitions through the following actions:

- a. Identify best practices in ninth-grade transition programs through the NGA Honor States pilot projects.
- b. Identify strategies to change the perception and utilization of the senior high school year as a transition to postsecondary education or training, rather than as a completion point.
- c. Evaluate the effectiveness of business-leader mentoring in the Commonwealth Scholars pilot programs and other existing programs to increase mentoring and parent involvement beginning in middle school.
- d. Evaluate the effectiveness of the Career Coaches and Career Pathways initiatives in increasing student enrollment and success in postsecondary education.
- e. Support ongoing work to increase the number and scope of articulation and transfer agreements between the community colleges and four-year colleges.
- f. Develop strategies to increase the proportion of 18- to 24-year-olds enrolled in college from 34 percent (2002-2004 average) to 39 percent by 2010.
- g. Form a working group to identify opportunities to improve transitions from undergraduate to graduate programs, particularly in high-demand fields such as math, science, education and nursing.

Comprehensive data systems: The foundation for evidence-based policy and practice

The Working Group on Comprehensive Data Systems is chaired by Dr. Virginia McLaughlin, Dean of the School of Education at the College of William and Mary. The Council Chairman's charge to this working group included the following:

- Make recommendations to facilitate the integration of DOE, SCHEV and VCCS data systems, consistent with the principles of the national Data Quality Campaign, to create a virtual, comprehensive, longitudinal P-16 data system.
 - ◆ Identify barriers to sharing of information and recommend solutions.
 - ◆ Recommend data standards and other requirements to permit longitudinal analyses.
 - ◆ Recommend strategies for housing, management, systems maintenance, continued funding and authorized use of data.
- Identify available data and valuable uses for data.
 - ◆ Recommend ways to use data, including course-taking patterns and SOL and other test scores, to improve student achievement.

- ◆ Recommend ways to monitor progress toward statewide goals.
- Identify remaining data gaps and recommend solutions.

The Council has endorsed the following recommendations from the working group toward the development of a robust P-16 data system:

1. **Work with the Office of the Attorney General, SCHEV and DOE to identify any barriers to appropriate sharing of data, with adequate safeguards, under state or federal laws.**
2. **Support the BOE regulation to require unique student test identifiers on high school transcripts.**
3. **Address privacy concerns by incorporating appropriate safeguards into the legislation, related regulations and restricted-use protocols.**
4. **Continue to monitor the Commonwealth's progress in implementing the ten essential elements of the Data Quality Campaign.**
5. **Create a steering committee of key constituents to guide ongoing development and implementation of Virginia's P-16 data system. This committee might be a subcommittee of the P-16 Council, reporting regularly to the P-16 Council on major accomplishments and barriers.**
6. **Work with the BOE and State Superintendent to engage local school boards and administrators in P-16 data system implementation.**
7. **Work with SCHEV and VCCS to involve key leaders in higher education in P-16 data system implementation.**
8. **Invest in ongoing sophisticated analyses of the effectiveness of Virginia's education system with particular emphasis on smooth transitions from one level to the next.**

Oversight of education reform activities

Virginia received a National Governor's Association (NGA) Honor States Grant, funded by the Bill and Melinda Gates Foundation, to improve high school graduation and college readiness. Thirty schools, dubbed the Honor Schools, were selected to participate in grant activities. The Honor Schools are from divisions across the state, and include diverse districts, large and small, urban and rural, with a range of strengths and challenges. The P-16 Council is charged with overseeing implementation of the grant. Virginia has reached the half-way mark in the two-year grant period. Following is a summary of grant activities to date:

Statewide Communications Strategy

In June 2006, Virginia sent a delegation to McLean, Virginia, to attend the NGA conference on developing a communications plan. During the two-day conference, the delegation, which included representatives from DOE, SCHEV, the Virginia

Association of Secondary School Principals (VASSP) and the Governor's office, worked to develop a communications plan proposal.

At this time, the NGA is reviewing the state's communications plan proposal. Once the proposal is approved, the Secretary of Education's office will begin implementation of the plan.

Presentations about Virginia's Honor Schools Grant have been made throughout the state. In June, a presentation was made to principals at the VASSP annual meeting about the grant and what strategies are being implemented to address the unique needs of ninth-grade students. A panel discussion was also held about the grant's implementation in three high schools. Panelists were principals of three of the state's Honor Schools. A presentation on the work of the state's P-16 Council was also delivered at the Virginia School Boards Association Annual meeting and to the BOE.

High-profile visits to Honor Schools from the Governor and the Secretary of Education provided opportunities to highlight Virginia's high school reform efforts. Governor Kaine has visited Woodbridge High School in Prince William County and Booker T. Washington High School in Norfolk. Secretary of Education Tom Morris has visited Nansemond River High School in Suffolk and Virginia High School in Bristol.

High Performing High Schools Study

This research study has been commissioned to identify high performing high schools in the Commonwealth and to review the practices and policies that contribute to their success. The International Center for Leadership in Education (ICLE)

was contracted by the DOE to complete the study. DOE and ICLE are currently working to identify the high schools that will be included in the study. Criteria used to select schools include adequate yearly progress, school accreditation and student performance results in mathematics, reading and science. Results of this study will be presented to the P-16 council at the policy forum scheduled to be held in 2007.

Academic Weaknesses Study

This research study will be commissioned to identify the current number of high school graduates enrolled in developmental (or remedial) education courses at community colleges, the primary subject areas, methods used by higher education for determination of need for developmental education and strategies for addressing the weaknesses before high school graduation. The study will allow educators to isolate the problems and rectify them with a variety of strategies that are recommended. VCCS has completed data mining for this study. VCCS has developed questions to guide the study. Results of this study will be presented to the P-16 council at the 2007 policy forum.

Leadership Training for Honor School Principals

VASSP has provided the Breaking Ranks II training to 22 Honor School principals. This training prepares principals to serve as coaches to provide mentoring and technical assistance to colleagues. Two additional trainings will be offered in October 2006 and November 2006 for the principals who have not yet been trained. Additionally, training is being offered to the six newly appointed principals of Honor Schools. Previously trained Honor School principals are also being invited to attend the

training for a second time, if they want to review the training elements.

Honor School principals and their mentor/coaches met in September 2006 in Richmond. Mentor/coaches will work with Honor School principals to provide them with coaching as well as establish a network of colleagues who will make themselves available for collaboration.

AP/Dual Enrollment Scholarships for Teachers

The grant provides scholarships of \$1,000 for 100 teachers of AP or dual-enrollment courses to assist in covering tuition, room, board and travel expenses to attend AP training institutes in their subject areas or tuition for graduate-level courses to provide the credentialing required to teach dual-enrollment courses. To date, more than \$16,000 in scholarship money has been awarded to teachers to pursue additional training to teach AP and dual-enrollment courses. Teachers will have the opportunity to apply for additional scholarship money beginning in November 2006.

Strategic Instructional Model Training for Teachers

Funds support training for to up to 240 teachers in the Strategic Instructional Model (SIM) developed by the University of Kansas Center for Research on Learning Institute for Effective Instruction. This model provides teachers with content-focused instruction and research-validated instructional strategies, especially helping to integrate better opportunities for special education students. In June 2006, more than two hundred teachers from Honor Schools and their feeder middle schools attended the SIM training at James Madison University. Teachers were provided instruction in using the

SIM for students with disabilities. Teachers will be offered this same opportunity in June 2007.

Mathematics-Science Partnership

To date, through the federal Title II, Part B Mathematics and Science Partnership program, DOE has provided funding in the amount of \$128,378 for coursework for teachers to add more in-depth training and new endorsements to their teaching licenses in the area of mathematics and science. This includes staff members at both the NGA Honor Schools and their feeder middle schools.

For Inspiration and Recognition of Science and Technology Robotics Training

Teachers from Honor Schools attended the For Inspiration and Recognition of Science and Technology (FIRST) robotics training in September 2006 in Richmond. Each Honor School sent a science, mathematics or technology teacher to this training. Teachers will work with students in each Honor School to construct a robot for competition in March at Virginia Commonwealth University. The FIRST program is designed to boost student interest and skills in math and science.

Expansion of Project Graduation

Project Graduation includes regional academies, online tutorials, electronic practice tests and opportunities for students to complete their diploma requirements after the senior year. During the 2005-2006 school year, Honor Schools were granted \$65,533 to offer students extended learning opportunities for students who needed to earn verified credits to graduate. Additional Project Graduation funds will be offered to Honor Schools this school year beginning in November 2006.

Expansion of Algebra Readiness Initiative

The Algebra Readiness program:

1. identifies and provides intervention services to middle school students who performed below average in their previous year's mathematics program and/or did not pass the state-administered SOL mathematics assessment test, and
2. better prepares students for success in Algebra I. Twenty-three Honor Schools were granted funds to host summer Algebra Readiness camps for rising ninth-grade students. Camps for at-risk students included intensive instruction in algebra with classes having low student-to-teacher ratios (10-1).

PSAT Fee Support

The 30 Honor Schools receive funds to provide PSAT testing to all tenth-grade students free of charge. The PSAT provides students with exposure to the skills necessary for optimum success on the SAT, as well as, exposure to the SAT test structure, and it is the instrument on which National Merit Scholars and National Achievement Scholars are selected. The state contracts with the College Board to provide training to teachers and counselors in participating schools on how to use AP Potential, a PSAT tool, to identify successful PSAT test takers for AP courses. This will increase the number of students taking AP-level courses. Honor Schools provided PSAT testing to all their tenth-grade students this year on October 12, 2006, with funds from the Honor States grant program.

College Awareness Project

School counselors from across the state, including Virginia's Honor Schools, had the opportunity to attend ECMC Foundation's Realizing the College Dream workshop on October 10, 2006, in Richmond and October 12, 2006, in Blacksburg as part of the grant's college awareness project. This professional development supports school counselors in their work to increase the expectations of attending college for low-income and first-generation college attendees, i.e., students who are the first in their family to attend college.

Honor School counselors will also participate in a series of regional drive-in, professional development sessions focusing on the VirginiaMentor website, an in-depth college awareness and preparation site that features detailed information about Virginia's public and private colleges and universities. The site now features a new SAT and ACT tutorial to help students prepare for the admissions assessments.

Career Coaches

A career coach curriculum, Operator's Manual for Career Coaching (for use by coaches and administrators in setting up a coaching program), and Career Coaching video have been developed and are available through the VCCS. The on-line curriculum is in development. A statewide database to store intake information, progress indicators and student career plans and portfolios generated by coaching program has been developed. To date, 12 career coaches are working in Honor Schools. Two additional coaches will be hired in the coming weeks. Once all 14 coaches are placed in Honor Schools, the state will have 55 coaches working with students throughout the state. Data for the first year are being compiled at this time. Included

in the data are survey responses from students and principals about the career coaching program. Honor Schools career coaches participated in a three-day academy in September 2006 to enhance their skills in providing coaching to students.

Other Recently Initiated Activities Integral to the P-16 Effort

Other councils, agencies, boards and committees are working on numerous initiatives related to the work of the P-16 Council. Rather than duplicate their efforts, the P-16 Council will follow their progress with interest and promote communication among the groups involved to ensure coordination and alignment of activities. These initiatives include:

- The Start Strong Council is working to improve school readiness by developing expanded access to quality pre-kindergarten for Virginia's four-year-olds. Preschool programs are to be delivered in schools and community settings through public-private partnerships.
- The Alignment Project is a multi-agency effort to align early learning guidelines for young children with existing preschool and kindergarten standards. This project is also developing program standards and a voluntary quality-rating system for early childhood education programs, a framework of professional competencies and a career lattice for early childhood educators.
- A BOE committee on dropouts and graduation rates will research and recommend policies to reduce the number of students who drop out of high school and to improve graduation rates, especially among minority students. Strategies considered may include mentoring for students beginning in middle school.
- BOE committees on high-quality preschool and on literacy have been established to develop strategies to strengthen early childhood education and raise the level of literacy of children, adolescents and adults in the Commonwealth.
- Higher Education Restructuring legislation (Chapters 933 and 945, 2005 Acts of Assembly) requires public colleges and universities to ensure access and affordability, improve student progression, retention and degree attainment and meet certain state objectives including working actively with K-12 to improve student achievement. SCHEV is charged with monitoring performance for these objectives.
- The Commonwealth Scholars program is Virginia's implementation of the federal State Scholars Initiative, partnering with local school divisions and business leaders to encourage students to take rigorous courses in high school.
- The Joint Subcommittee Studying Science, Math and Technology Education has been convened by the legislature to examine the adequacy of Virginia's instructional programs in these areas and to study ways to provide incentives for students to pursue careers in these disciplines.

Continuation of the P-16 Education Council

The P-16 Education Council has advanced productive discussion and collaboration among K-12 public education, community colleges, four-year colleges and the business community. The Council has developed recommendations to strengthen readiness for high school, college and work; alignment of expectations; transitions; and use of data to improve student outcomes. To continue this progress, the Council makes the following recommendation:

- Extend the term of the Council, which is currently set to expire October 19, 2006, and consider establishing the Council in statute. Continuation will permit the Council to complete several key steps, including the adoption of a common standard for college and workforce readiness and a gap analysis between the common standard and existing high school graduation standards.

The Council has closely followed the progress of the Start Strong Council and other early childhood education and school readiness initiatives. The addition of a representative from the early childhood education community would assist the Council in ensuring that early childhood initiatives are coordinated with other education reforms. Accordingly, the Council makes the following recommendation:

- Add a preschool education representative to the Council membership.

Several of the Council's recommendations include private, as well as, public colleges and universities. The addition of a representative from the private-college community would assist the Council in ensuring alignment of expectations, coordination of reform and productive use of data across all sectors. Accordingly, the Council makes the following recommendation:

- Add a private college representative to the Council membership.

With an extension of time and these additions to the membership, Virginia's P-16 Education Council will be poised to continue its work across educational sectors to better coordinate reforms, promote student achievement and prepare Virginia's young people for success in the knowledge-based economy of the 21st Century.

References

ACT Inc. *Ready for College and Ready for Work: Same or Different?* Iowa City, IA: ACT. <http://www.act.org/path/policy/pdf/ReadinessBrief.pdf>

Competing in the 21st Century: Moving Virginia's Human Capital Meter, Virginia Futures Forum, Council on Virginia's Future. <http://www.future.virginia.gov/forum/home/issuesbook.pdf>

Henderson, John and Abraham, Bridget, "Can Rural America Support a Knowledge Economy?," Federal Reserve Bank of Kansas City Economic Review, Third Quarter 2004, pages 81 and 91.

Martin, Julia, Carrier, Achsa H., and Hill, Elizabeth. *Changing Workplace: Employers Speak*. Weldon Cooper Center for Public Service, University of Virginia, 1997.

Measuring Up 2006: The National Report Card on Higher Education, National Center for Public Policy and Higher Education, September 2006. http://measuringup.highereducation.org/_docs/2006/NationalReport_2006.pdf

Measuring Up 2006: The State Report Card on Higher Education - Virginia, National Center for Public Policy and Higher Education, September 2006. http://measuringup.highereducation.org/_docs/2006/statereports/VA06.pdf

National Center for Education Statistics (NCES) Longitudinal Study. <http://nces.ed.gov/surveys/nels88/>

Policy Alert: Income of U.S. Workforce Projected to Decline if Education Doesn't Improve, National Center for Public Policy and Higher Education, November 2005. http://www.highereducation.org/reports/pa_decline/pa_decline.pdf

What Is P-16 Education? A Primer for Legislators - A Practical Introduction to the Concept, Language and Policy Issues of an Integrated System of Public Education. Education Commission for the States, 2001. <http://www.ecs.org/clearinghouse/24/28/2428.htm>

Notes

Notes

32

